

WHAT IS CLAIMED IS:

1. A method for defining data symbols in a radio frequency identification (RFID) tag device, comprising the steps of:
  - (a) receiving a first calibration pulse on an input signal;
  - (b) storing a length of the received first calibration pulse as a stored first length;
  - (c) receiving a second calibration pulse on the input signal; and
  - (d) storing a length of the received second calibration pulse as a stored second length.
2. The method of claim 1, further comprising the steps of:
  - (e) receiving a data symbol having a pulse portion on the input signal, wherein the pulse portion has a length;
  - (f) setting a first flag if the length of the pulse portion is greater than the stored first length; and
  - (g) setting a second flag if the length of the pulse portion is greater than the stored second length.
3. The method of claim 2, further comprising the steps of:
  - (h) determining the data symbol to be a first data value if the first flag is not set during step (f);
  - (i) determining the data symbol to be a second data value if the first flag is set during step (f) and the second flag is not set during step (g); and
  - (j) determining the data symbol to be a third data value if the first flag is set during step (f) and the second flag is set during step (g).
4. The method of claim 3, further comprising the steps of:
  - (k) defining the first data value as a 0 bit;
  - (l) defining the second data value as a 1 bit; and
  - (m) defining the third data value as a Null bit.

5. The method of claim 1, further comprising the steps of:
- (e) receiving a data symbol having a pulse portion on the input signal, wherein the pulse portion has a length;
  - (f) determining the data symbol to be a first data value if the length of the pulse portion is less than the stored first length;
  - (g) determining the data symbol to be a second data value if the length of the pulse portion is greater than the stored first length and less than the stored second length; and
  - (h) determining the data symbol to be a third data value if the length of the pulse portion is greater than the stored second length.
6. The method of claim 1, further comprising the steps of:
- (e) receiving a third calibration pulse on the input signal; and
  - (f) storing a length of the received third calibration pulse as a stored third length.
7. The method of claim 6, further comprising the steps of:
- (g) receiving a data symbol having a pulse portion on the input signal, wherein the pulse portion has a length;
  - (h) determining the data symbol to be a first data value if the length of the pulse portion is less than the stored first length;
  - (i) determining the data symbol to be a second data value if the length of the pulse portion is greater than the stored first length and less than the stored second length; and
  - (j) determining the data symbol to be a third data value if the length of the pulse portion is greater than the stored second length and less than the stored third length.
8. The method of claim 7, further comprising the steps of:
- (k) defining the first data value as a 0 bit;
  - (l) defining the second data value as a 1 bit; and
  - (m) defining the third data value as a Null bit.

9. The method of claim 6, further comprising the steps of:

- (g) receiving a data symbol having a pulse portion on the input signal, wherein the pulse portion has a length;
- (h) setting a first flag if the length of the pulse portion is greater than the stored first length; and
- (i) setting a second flag if the length of the pulse portion is greater than the stored second length.

10. The method of claim 9, further comprising the steps of:

- (j) determining the data symbol to be a first data value if the first flag is not set during step (h);
- (k) determining the data symbol to be a second data value if the first flag is set during step (h) and the second flag is not set during step (i); and
- (l) determining the data symbol to be a third data value if the first flag is set during step (h) and the second flag is set during step (i).

11. The method of claim 10, further comprising the steps of:

- (m) defining the first data value as a 0 bit;
- (n) defining the second data value as a 1 bit; and
- (o) defining the third data value as a Null bit.

12. The method of claim 6, further comprising the steps of:

- (g) receiving master reset event signal;
- (h) receiving a fourth calibration pulse on the input signal;
- (i) storing a length of the received fourth calibration pulse as the stored first length;
- (j) receiving a fifth calibration pulse on the input signal;
- (k) storing a length of the received fifth calibration pulse as the stored second length;
- (l) receiving a sixth calibration pulse on the input signal; and

(m) storing a length of the received sixth calibration pulse as the stored third length.

13. The method of claim 12, further comprising the steps of:

(n) receiving a data symbol having a pulse portion on the input signal, wherein the pulse portion has a length;

(o) determining the data symbol to be a first data value if the length of the pulse portion is less than the stored first length;

(p) determining the data symbol to be a second data value if the length of the pulse portion is greater than the stored first length and less than the stored second length; and

(q) determining the data symbol to be a third data value if the length of the pulse portion is greater than the stored second length and less than the stored third length.

14. The method of claim 13, wherein the length of the first calibration pulse is not equal to the length of the fourth calibration pulse.

15. The method of claim 13, wherein the length of the second calibration pulse is not equal to the length of the fifth calibration pulse.

16. The method of claim 13, wherein the length of the third calibration pulse is not equal to the length of the sixth calibration pulse.

17. The method of claim 6, further comprising the steps of:

(g) receiving a data symbol having a pulse portion on the input signal, wherein the pulse portion has a length; and

(h) transmitting a backscatter symbol in response to the received data symbol, wherein the backscatter symbol begins after the pulse portion on the input signal, and wherein the backscatter symbol ends at a time substantially equal to the stored third length after a beginning of the pulse portion of the received data symbol.

18. The method of claim 17, further comprising the steps of:
- (i) receiving master reset event signal;
  - (j) receiving a fourth calibration pulse on the input signal;
  - (k) storing a length of the received fourth calibration pulse as the stored first length;
  - (l) receiving a fifth calibration pulse on the input signal;
  - (m) storing a length of the received fifth calibration pulse as the stored second length;
  - (n) receiving a sixth calibration pulse on the input signal; and
  - (o) storing a length of the received sixth calibration pulse as the stored third length.

19. The method of claim 18, further comprising the steps of:
- (p) receiving a second data symbol having a second pulse portion on the input signal, wherein the pulse portion has a second length, wherein the second length is not equal to the length of the first data symbol; and
  - (q) transmitting a second backscatter symbol in response to the received second data symbol, wherein the second backscatter symbol begins after the second pulse portion on the input signal, and wherein the second backscatter symbol ends at a time of the stored third length in step (o) after a beginning of the received second data symbol.

20. The method of claim 19, wherein the first pulse portion is a first inverted pulse portion, and second pulse portion is a second inverted pulse portion, wherein step (p) comprises the step of:

receiving the second data symbol having the second inverted pulse portion on the input signal, wherein the second pulse portion has the second length, wherein the second length is not equal to the length of the first data symbol.

21. The method of claim 17, wherein the pulse portion is an inverted pulse portion, wherein step (g) comprises the step of:

receiving the data symbol having the inverted pulse portion on the input signal.

22. A method for defining data signal symbols in a radio frequency identification (RFID) tag device, comprising the steps of:

- (a) receiving a first calibration signal;
- (b) detecting a physical characteristic of the received first calibration signal;
- (c) storing the detected physical characteristic of the received first calibration signal as a stored first characteristic;
- (d) receiving a second calibration pulse; and
- (d) detecting a physical characteristic of the received second calibration signal; and
- (e) storing the detected physical characteristic of the received second calibration signal as a stored second characteristic.

23. The method of claim 22, further comprising the steps of:

- (f) receiving a data symbol having a physical characteristic;
- (g) determining the data symbol to be a first data value if the physical characteristic of the received data symbol has a predetermined relationship with the stored first characteristic;
- (h) determining the data symbol to be a second data value if the physical characteristic of the received data symbol has a predetermined relationship with the stored second characteristic; and
- (i) determining the data symbol to be a third data value if the physical characteristic of the received data symbol does not have the predetermined relationship with the stored first characteristic in step (g) and does not have the predetermined relationship with the stored second characteristic in step (h).